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(54) **UPDATING A PROFILE OF AN ONLINE SYSTEM USER TO INCLUDE AN AFFINITY FOR AN ITEM BASED ON AN IMAGE OF THE ITEM INCLUDED IN CONTENT RECEIVED FROM THE USER AND/OR CONTENT WITH WHICH THE USER INTERACTED**

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(57) **ABSTRACT**

An online system receives a content item including an image from a content-providing user and/or receives an interaction with the content item from a viewing user. The online system accesses a machine-learning model that is trained based on a set of images of items associated with an entity and attributes of each image. The online system applies the model to predict a probability that the content item includes an image of an item associated with the entity based on attributes of the image included in the content item. Based on the predicted probability, the online system updates a profile of the user (i.e., the content-providing user and/or the viewing user) to include an affinity for the item. Upon determining an opportunity to present content to the user, the online system selects content for presentation to the user based on the profile and sends the content for presentation to the user.

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